Operating Instructions

Instrucciones de manejo

使用説明書

إرشادات الإستعمال

Portable Stereo Component System

MODEL NO. RX-DS660

National

Read these instructions completely before operating this unit.

GC

Thank you for purchasing this unit. For optimum performance, follow these operating instructions carefully. ENGLISH 7–24

Muchas gracias por la adquisición de este aparato.
Por favor siga atentamente las instrucciones de este manual para obtener de él el máximo rendimiento. ESPAÑOL 25–42

感謝您購買本機，爲獲得最佳性能，請詳細閱讀此説明書。 中文 43–60

شكراً جزيلا على شرائك لهذا الجهاز. إتبع إرشادات التشغيل هذه لغاية الحصول على أفضل أداء. العربية 61–78

CAUTION!

THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

¡ADVERTENCIA!

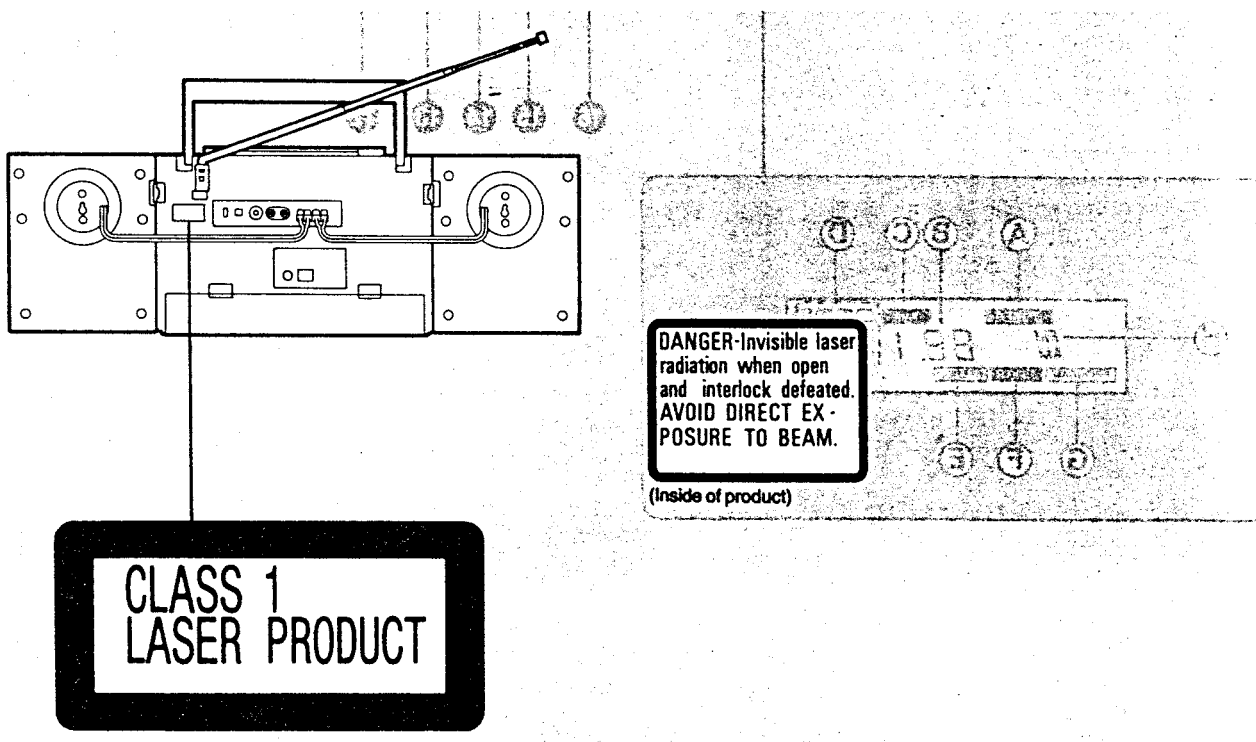
ESTE APARATO UTILIZA UN LASER.
EL USAR LOS CONTROLES, HACER LOS REGLAJES O LOS PASOS REQUERIDOS EN FORMA DIVERSA DE LA AQUÍ EXPUESTA PUEDE REDUNDAR EN EXPOSICIÓN PELIGROSA A LA RADIACIÓN.
NO ABRA LAS TAPAS NI HAGA REPARACIONES USTED MISMO. EN CASO DE PRODUCIRSE ANOMALÍAS SOLICITE AYUDA DE PERSONAL CUALIFICADO.

注意！

本產品是使用雷射。
未按本説明書內的規定使用控制器，進行調整或操作時，可能會使您暴露在有害的射線下。
勿打開機殼或自行修理。有問題請洽詢服務中心。

تحذيـر !

يستخدم هذا الجهاز أشعة الليزر .
قد يؤدي إستعمال المسيطرات أو الضوابط أو إداء نهوج مخالفة لما هو محدد هنا الى مخاطر التعرض الى الأشعة .
لا تفتح الأغطية ولا تقم بالتصليح بنفسك . أعهد ذلك الى الفني المؤهل للصيانة .

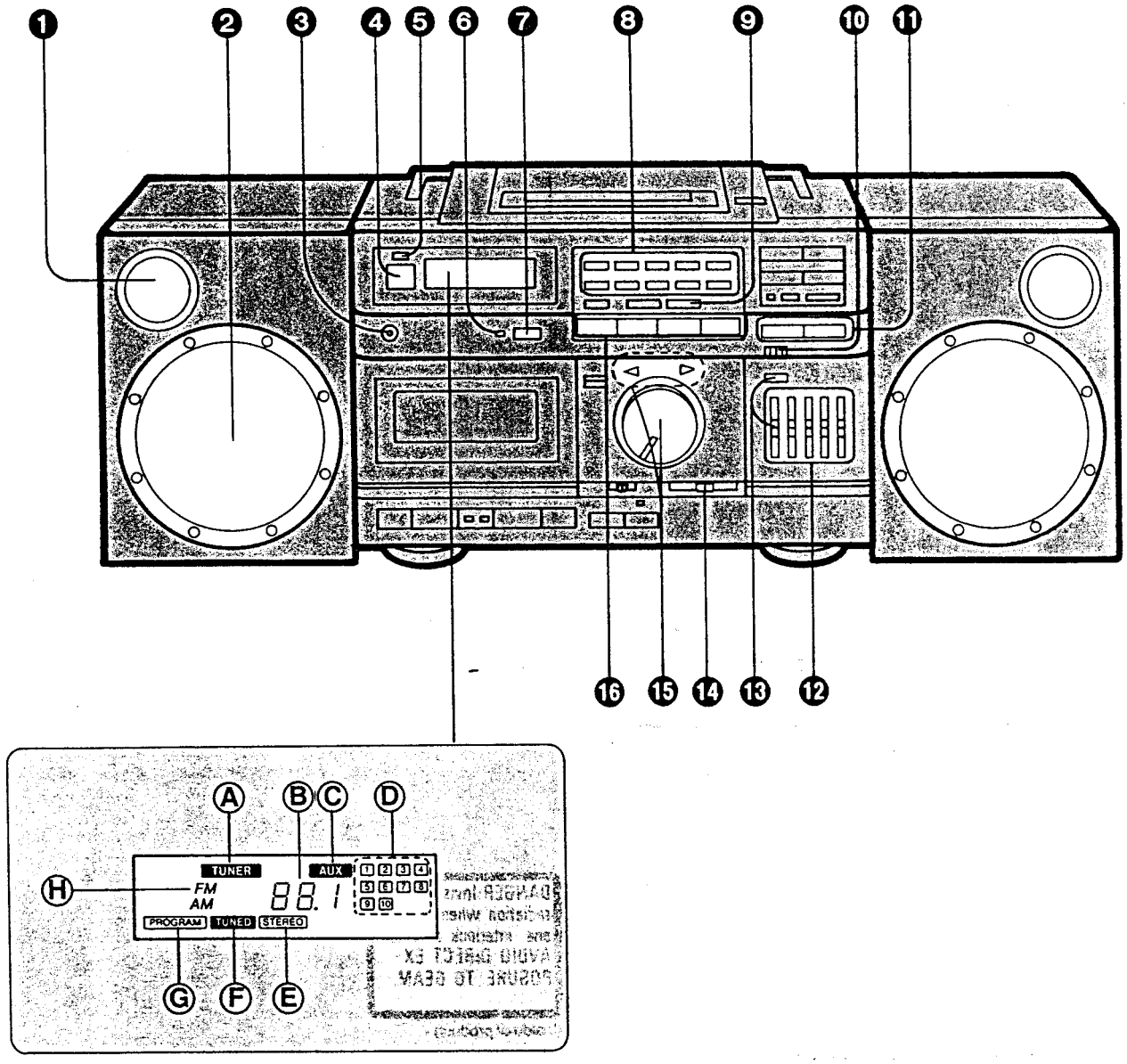


TUNER/GENERAL CONTROLS

CONTROLES DE SINTONIZADOR/ GENERALES

調諧器/一般控制

مسيطرات عمومية/توليفية

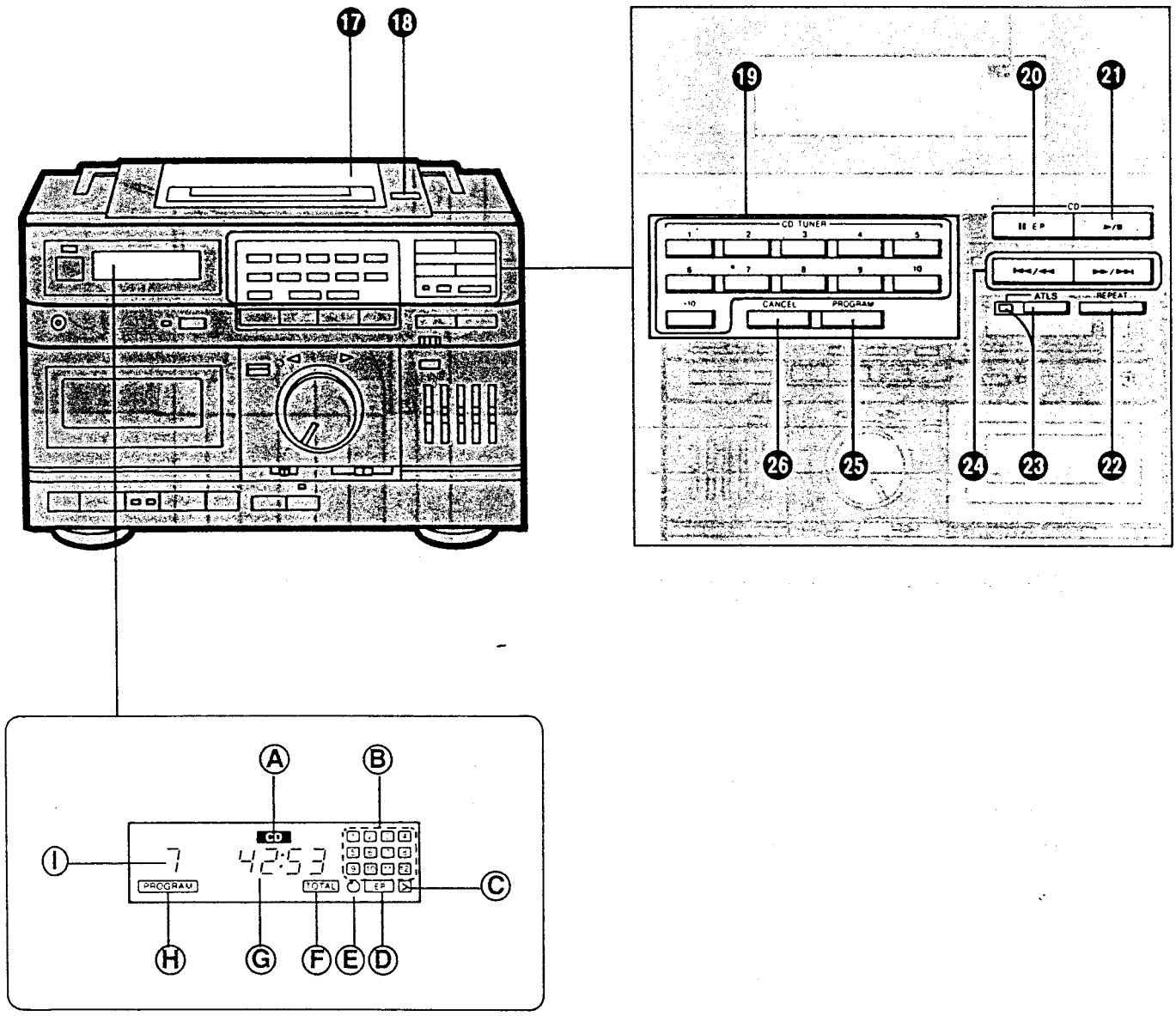


CD-CONTROLS

CONTROLES DE DC

CD控制器

مسيطرات الأسطوانة المتراصة



DECK CONTROLS

CONROLES DE PLATINA

卡座控制器

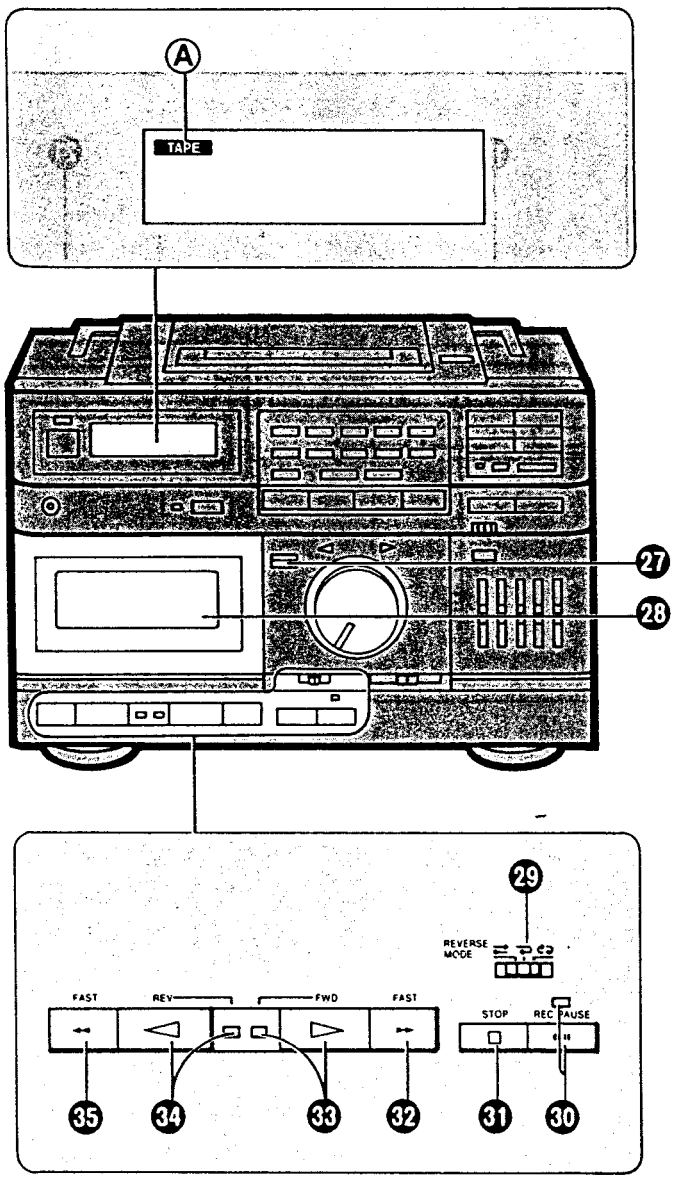
مسيطرات الدك

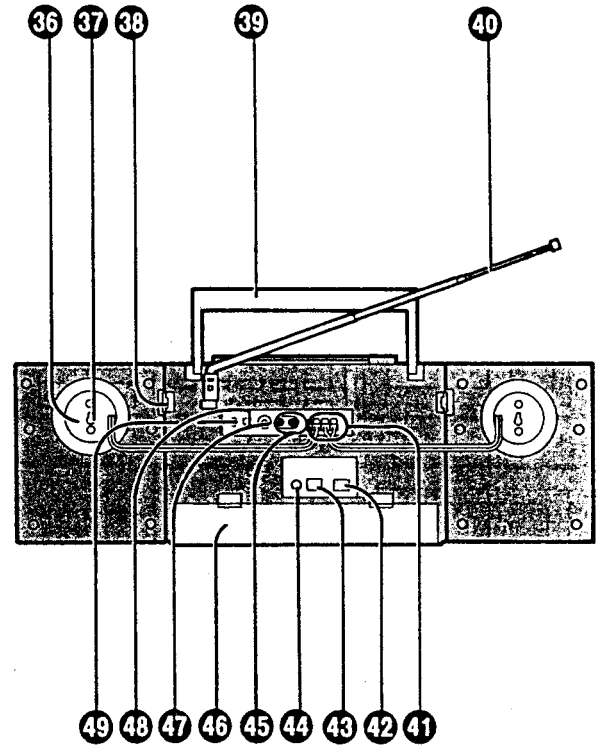
REAR PANEL

PANEL POSTERIOR

後　板

اللوحة الخلفية





LOCATION OF CONTROLS

TUNER/GENERAL CONTROLS

❶ Speakers [Tweeter]

❷ Speakers [Woofer]

❸ HeadphonesJack (PHONES)

❹ Remote Control Sensor

❺ AC Connection Indicator

❻ Power/Battery Check Indicator

❼ Power "STANDBY ⏻/ON" switch (POWER/STANDBY ⏻/ON)
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

❽ Preset Tuning Buttons (1–10)

❾ Preset Memory Button (PROGRAM)

❿ FM Mode/Beat Proof Switch (FM MODE/B.P)

⓫ Tuning Buttons (TUNING)

⓬ Graphic Equalizer Controls (GRAPHIC EQUALIZER)

⓭ XBS (Extra Bass System) Switch and Control (XBS)

⓮ Balance Control (BALANCE)

⓯ Volume Control and Indicators (VOLUME)

⓰ Function Selector Buttons (FUNCTION SELECTOR)
"TUNER/BAND" Button can also be used for Band Selector.

Ⓐ Tuner Mode Indicator ([TUNER])

Ⓑ Frequency Display

Ⓒ Auxiliary Mode Indicator ([AUX])

Ⓓ Preset Tuning Indicator ([1]–[10])

Ⓔ Stereo Indicator ([STEREO])

Ⓕ Tuning Indicator ([TUNED])

Ⓖ Preset Memory Indicator ([PROGRAM])

Ⓗ Band Indicator (FM • AM)

CD CONTROLS

⓱ Disc Holder

⓲ CD Eject Button ([CD] EJECT)

⓳ Numeric Buttons (1–10, +10)

⓴ Pause/Edit Pause Button (❚❚/E.P)

㉑ Play/Stop Button (▶/■)

㉒ Repeat Button (REPEAT)

㉓ ATLS (Auto Tape Level Settings) Button and Indicator (ATLS)

㉔ Skip/Search Buttons (|◀◀/◀◀ • ▶▶/▶▶|)

㉕ Program Button (PROGRAM)

㉖ Cancel Button (CANCEL)

Ⓐ CD Mode Indicator ([CD])

Ⓑ Music Matrix ([1]–[12])

Ⓒ Over Mark ([>])

Ⓓ Edit-pause Indicator ([EP])

Ⓔ Repeat Indicator (↻)

Ⓕ Total Time Indicator ([TOTAL])

Ⓖ Playing Time Display

Ⓗ Program Indicator ([PROGRAM])

Ⓘ Track Display

DECK CONTROLS

㉗ Eject Button (⏏ EJECT)

㉘ Cassette Holder

㉙ Reverse Mode Select Switch (REVERSE MODE)

㉚ Rec-pause Button and Indicator (REC PAUSE)

㉛ Stop Button (STOP)

㉜ Fast Button (▶▶)

㉝ Forward-side Playback Button and Indicator (FWD)

㉞ Reverse-side Playback Button and Indicator (REV)

㉟ Fast Button (◀◀)

Ⓐ Tape Mode Indicator ([TAPE])

REAR PANEL

㊱ Speaker Cable Compartments

㊲ Speaker Wall Mounts

㊳ Speaker Release Levers (RELEASE)

㊴ Handle

㊵ Telescopic Antenna

㊶ Speaker Terminals [SPEAKER (IMP 2.7–8Ω)]

㊷ AC Voltage Selector (VOLTAGE SELECTOR)

㊸ AC Socket (AC IN ~)

㊹ DC Input Jack (DC IN 13.2 V)

㊺ Auxiliary Input Jack (AUX IN)

㊻ Battery Compartment

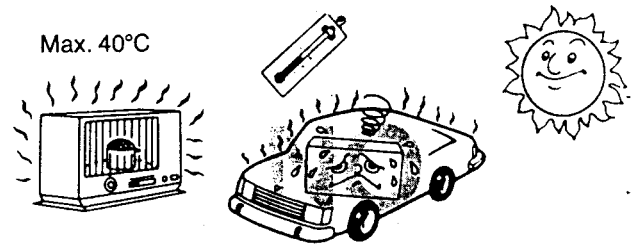
㊼ Mixing Microphone Jack (MIX MIC)

㊽ Microprocessor Beat Proof Switch (M.B.P.)

㊾ AM Frequency Step Selector [MW (AM) STEP]

PRECAUTIONS

- **If the set is not used for a long period of time or is used only from an AC power source, remove all the batteries to prevent potential damage due to possible battery leakage.**
- Avoid using or placing this unit near sources of heat. Do not leave it in an automobile exposed to direct sunlight for a long time with the doors and windows closed as this may deform the cabinet.
- Avoid cuts, scratches, or poor connections in the AC power cord, as they may result in possible fire or electric shock hazard. Also, excessive bending, pulling or splicing of the cord should be avoided.
- Do not unplug the AC power cord by pulling on the cord. To do so may cause premature failure or shock hazard.
- Do not operate the set on AC power in a bathroom, as a potential shock hazard may result.
- When not in use, disconnect the AC power cord from the AC power outlet.
- **The Power Switch does not separate entire unit from AC power outlet even if in "OFF" position.**



To Prevent Possible Damage to This Unit

- Load new batteries with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to batteries, or internal short-circuit may occur.
- If this unit is not to be used for a long period of time, or used on AC power supply, remove all batteries and store them in a cool and dry place.
- Remove spent batteries immediately.
- Do not use old and new batteries together. Also never use an alkaline battery with a manganese battery.

MEMORY BACK-UP

Program memory for the Tuner and CD of this unit is retained by AC power when operated on AC power supply or by battery power when operated on batteries (10 UM-1, National R20/LR20 or equivalent, not included).
In case the Memory Back-up Batteries are not used, power failure (when using AC power) or the following operations cause the erasure of the memory:

- When using AC power; unplugging the AC power cord from the household AC power outlet.
- When using battery power (UM-1); inserting the AC power cord only into the AC Socket of this unit.

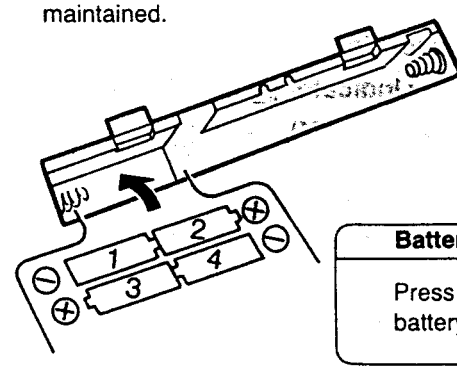
If one of the above cases occur, enter the program in memory again.

In order to avoid the accidental erasure of the program in memory, using the Memory Back-up Batteries (4 UM-3, National R6/LR6 or equivalent, not included) is recommended.

- The life of the Memory Back-up Batteries is about one year.
- While exchanging the Memory Back-up Batteries, be sure to connect the AC power cord both to the unit and household AC power outlet.

■ Memory Back-up Batteries (4 UM-3)

1. Open the Battery Compartment cover.
2. Insert 4 UM-3 (National R6/LR6 or equivalent, not included) batteries into the Battery Compartment, making sure that the batteries are installed in the designated numerical order and that the proper polarities are maintained.



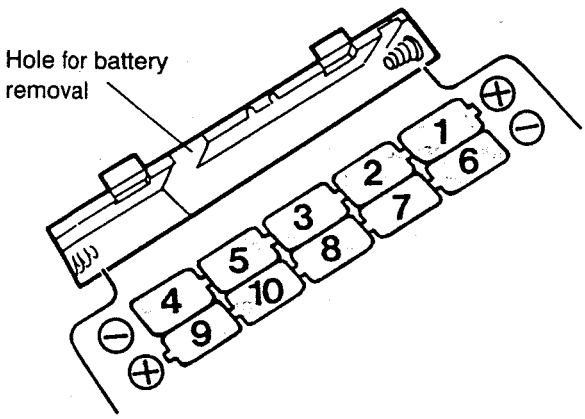
Battery Removal

Press the No. 2 of battery (⊖ side)

POWER SOURCE

■ Battery Operation (10 UM-1)

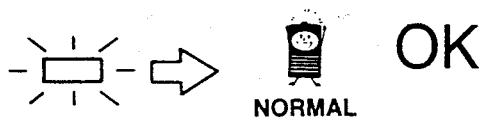
Insert 10 UM-1 (National R20/LR20 or equivalent, not included) batteries into the Battery Compartment, making sure that the batteries are installed in the designated numerical order and that the proper polarities are maintained.

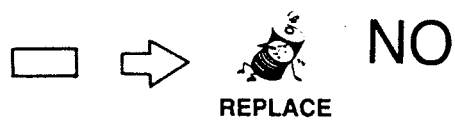


•Battery life

When the batteries are weak, the tape speed will slow down, the sound will become distorted, and the volume will decrease.

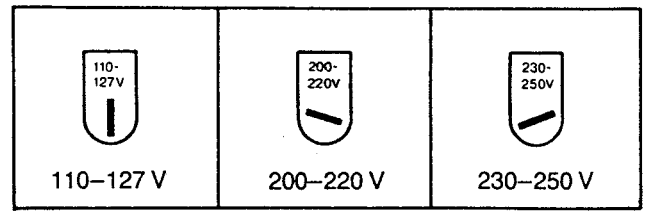
•Press the Power Switch to turn on the unit.
If the Power/"standby ⏻" Indicator goes out or dims, replace all batteries with new ones.



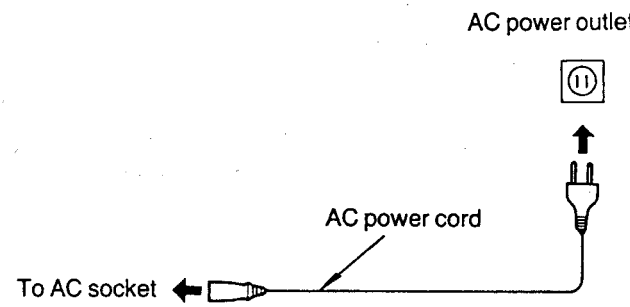


■ AC Power Operation

1. First, check the AC Voltage Selector to ensure that it is set to the voltage which corresponds to your household AC voltage. If not, select the proper voltage by inserting a small screwdriver into the slot provided and turning the screwdriver until the desired voltage appears through the opening.



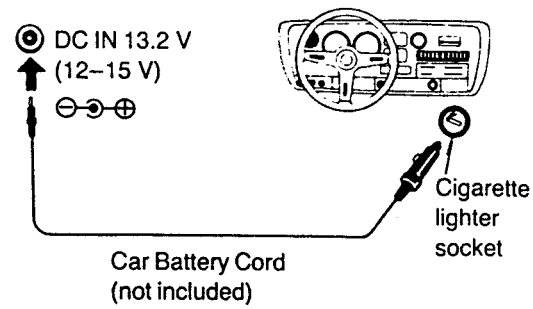
2. Connect the included AC power cord to the AC Socket in the unit and your household AC power outlet.



Note:
To operate on battery power, unplug the AC power cord from the household AC power outlet and the AC Socket on the unit.

■ Car Battery Operation

1. Insert the plug of the car battery cord into the DC Input Jack.
2. Plug the other end into the cigarette lighter socket in your car.
   Upon plugging the car battery cord into the DC Input Jack, the unit will automatically switch from internal battery to car battery operation.



NOTES FOR CD OPERATION

■ Do not attempt to take this unit apart or attempt repairs yourself.

This unit is a very intricate device that uses a laser pickup to retrieve information from the surface of compact discs. The laser is carefully shielded so that its rays remain inside the cabinet. Therefore, never try to disassemble the player or alter any of its parts since you may be exposed to laser rays and dangerous voltages.

Laser products:
Wave Length—780 nm
Laser Power—No hazardous radiation is emitted with safety protection.

■ Close the disc holder cover when not in use.

There is a precision-made focusing lens in the disc holder. Always close the disc holder cover when not using the unit to protect this lens from dirt and dust. Also, never try to touch this lens.

■ The top and rear panels of the unit become warm while a disc is being played.

This is one way in which the unit dissipates heat and is not a malfunction.

■ Handle this unit with care when carrying or storing, do not subject it to any strong bumps or impacts.

Always remove the disc before storing the unit for any period of time.

■ Turn down the Volume Control.

Compact Discs have much less noise and a much wider dynamic range. Consequently, you may turn the volume up too high if you adjust it by trying to listen to surface noise as you might with a phonograph record. To prevent this problem, turn the volume down, raising it as desired only after the music has started playing.

■ Times displayed by this unit may differ slightly from the track times in the disc liner note.

The liner note included with each compact disc lists the playing times of each track. Since the times calculated by this unit include pause intervals, the displayed time may differ from the liner note time by this amount.

■ Do not place this unit near a tuner or television.

This unit uses high frequency signals and can cause interference with other radio and television reception. If this occurs, move this unit farther away from the radio or television or change from an interior to an exterior television antenna.

CONCERNING COMPACT DISCS

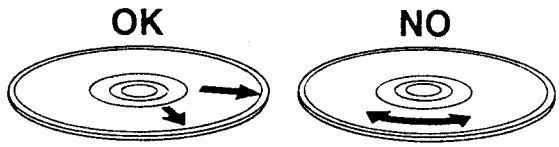
Observe the following precautions to enjoy the same outstanding performance from your compact discs for many years.

■ Handling precautions

Only compact discs having this mark can be used with this player.

COMPACT disc DIGITAL AUDIO

- Hold compact discs by the edges so the surface is not soiled with fingerprints.
- Be careful not to scratch the surface with fingernails or other sharp objects, particularly when inserting and removing discs from their cases.
- Do not bend the disc.
- Do not use record cleaning sprays or static electricity prevention liquids.
- Do not wipe with benzine, thinner or any other solvent. If the surface is soiled, wipe gently with a soft, damp (water only) cloth.
- When wiping discs, always move the cloth directly outward from the center of the disc, not in a circular motion as with standard phonogragh records.



(In Compact Discs, circular scratches along a line of pits are more likely to cause errors than straight scratches across many lines of pits.)

- If the disc is brought from a cold environment into a warm room, dew may form on the disc. Wipe this off with a soft, dry cloth before using the disc.
- Do not try to dry discs with a hair dryer.
- Do not write on the label side with a ball-point pen, hard pencil or other writing utensil.

■ Storage precautions

- Be sure to store discs in their cases to protect them from dust, scratches and warping.
- Do not place or store discs in the following places:

1. Locations exposed to direct sunlight.
2. Locations with high humidity or a lot of dust.
3. Locations directly exposed to a heat outlet or heating appliance.
4. In the glove compartment or rear ledge of an automobile.

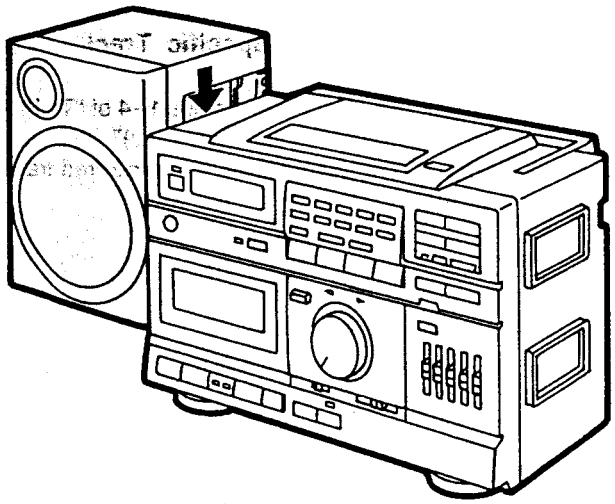
SPEAKER SYSTEM CONNECTION

This unit can be used as a one-piece portable stereo CD system, or a three-piece component system, by attaching or detaching the speaker system.

- Before attaching or detaching the Speakers, be sure to disconnect the Speaker Cables from the Speaker Terminals.
- Be sure to press the Power Switch to turn off the unit before connecting the Speaker Cables.

■ Attaching the Speakers

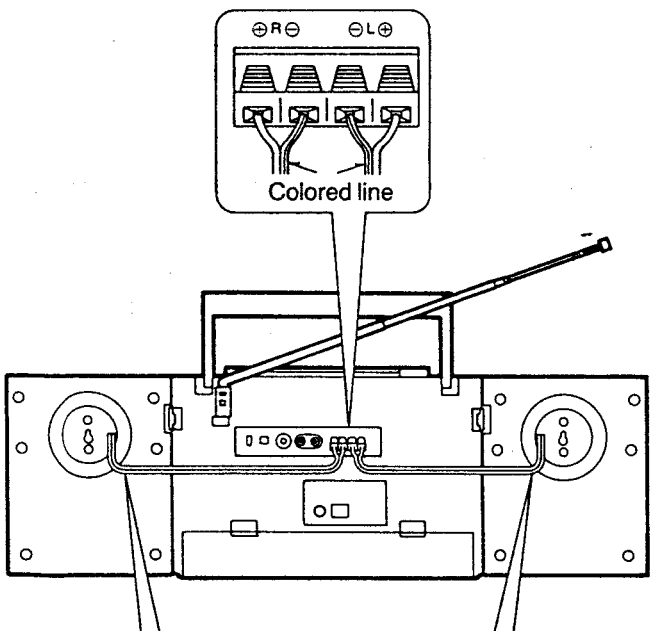
Align the speaker with the main unit as shown in the figure, interlock the grooves and press down.



■ Connecting the Speaker Cable

Connect the speaker cord end, marked by a colored line, to the ⊖ speaker terminal and then in turn to the appropriate speaker.

- Stereo effect and total quality are likely to be impaired if the polarities (⊕ and ⊖) are not properly maintained.

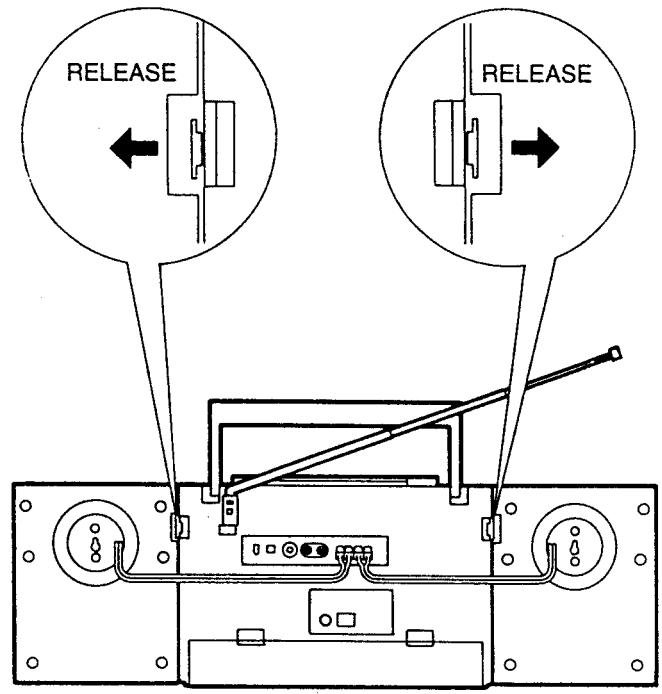


When using the unit with the Speakers attached, wind the Speaker Cables as shown.

Note:
Since a strong magnet is used for the Speaker, keep magnetized commuter passes, tickets or personal credit cards, recorded tapes, watches, etc. away from the set. The speaker magnet in the set may damage them.

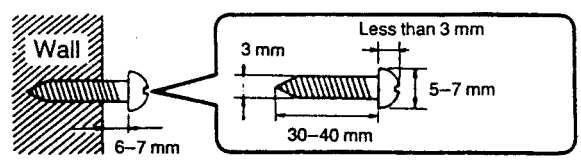
■ Detaching the Speakers

Unlock the Speaker Release Levers by pulling them in the direction shown below, and slide up each Speaker.



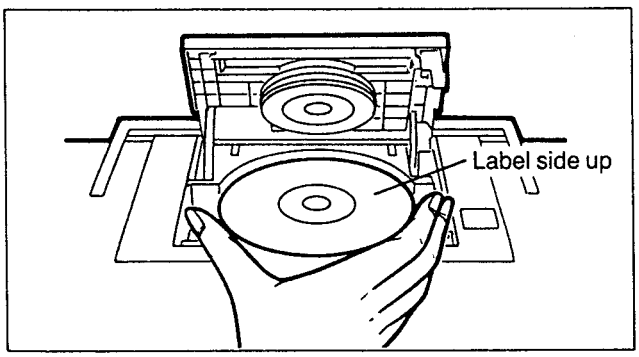
■ Speaker Wall Mounts

1. Drive one screw into the wall for each speaker, as shown in the figure. Ensure that both the screws and the wall can support a 20 kg load.
2. Mount the Speakers to the wall by hanging the Speaker Wall Mounts (built into the speaker cabinet) onto the screws.

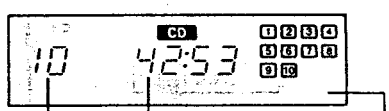


■ To Play a Disc from Beginning to End (Auto-play)

1. Press the Power Switch to turn on the unit.
2. Press the "CD" Button of the Function Selector.
3. Set Volume Control to the lowest setting.
4. Open the Disc Compartment cover by pressing the CD Eject Button.
   Insert a disc, and then close the cover.

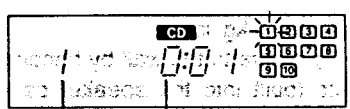


- When the Disc Compartment cover is closed, the disc will rotate and the total number of tracks and the total playing time will appear on the Display Panel.



- When there are more than 12 tracks on the disc, the "[>]" mark will be displayed.

5. Press the Play/Stop Button.
   - The disc will be played from the first track.
   - The number of the track being played will flash, and go out at the end of that track.

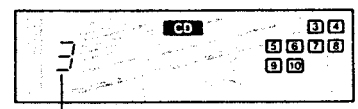


6. Adjust the Volume, Balance, XBS and Graphic Equalizer Controls to the desired settings. (Refer to "Extra Bass System" and "Graphic Equalizer" on page 16.)
7. To stop disc play, press the Play/Stop Button.
   - The disc will stop rotating, and the total number of tracks and the total playing time will be displayed once again on the Display Panel.
   - When all tracks have been played, the disc will automatically stop.
8. Press the Power Switch to turn off the unit.

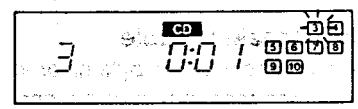
Note:
Always press the Play/Stop Button to stop rotating the disc before opening the Disc Compartment, to avoid possible damage to disc and/or the disc play mechanism.

■ To Play a Disc from a Specific Track (Direct-play)

1. Follow the procedure described in steps 1–4 of "To Play a Disc from Beginning to End (Auto-play)".
2. Press the Numeric Button to specify the desired track, disc play will start from that track.



- For example, to play a disc from the track 3, press the [3] Button.



- This means that the track 3 is being played and that disc play will continue to the last track.

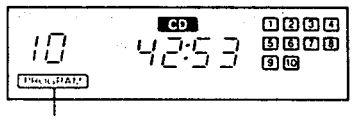
3. Follow the procedure described in steps 6–8 of "To Play a Disc from Beginning to End (Auto-play)".

Choosing a specific track
Tracks 1–10: Press the appropriate numeric button [1]–[10] directly.
Tracks 11 and up: First press [+10], then [1]–[10]. (Press [+10] twice for 20, three times for 30, and so on.)

■ To Play Several Tracks out of Order (Program-play)

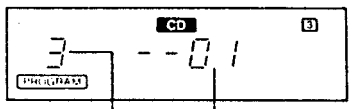
1. Follow the procedure described in steps 1–4 of "To Play a Disc from Beginning to End (Auto-play)".
2. Program several tracks out of order.
   (A maximum of 36 tracks can be programmed).

   ① Press the Program Button.

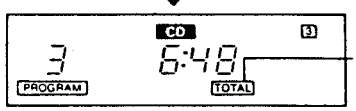


Program Indicator will appear.

   ② Press the Numeric Button, and specify the desired track.



- The Selection Indicator will count the selections.
- If the program time is over 36 times, "F" indication will appear.
- If a track number not included on a disc is specified, "E" indication will appear.



Total Indicator will appear.

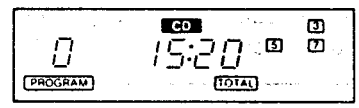
- If the same button is pressed repeatedly, the same track is programmed repeatedly.

   ③ Repeat procedure ② according to your program selections.

3. Press the Play/Stop Button.
   - The disc will be played from the first program track of the first selection then skip to the next selection.

4. Adjust the Volume, Balance, XBS and Graphic Equalizer Controls to the desired settings. (Refer to "Extra Bass System" and "Graphic Equalizer" on page 16.)

5. To stop disc play, press the Play/Stop Button.
   - The disc will stop automatically when all the programmed tracks have finished playing with the programming retained in the memory.



Note:
" 38oF " will appear on the Display Panel, if the total playing time programmed is over 99 minutes 59 seconds (such as when it is 138 minutes).

•To clear all the programs

① **Press the Program Button.**
(Program Indicator will flash about several seconds.)

② **During Program Indicator flashing, press the Cancel Button.**
(Program Indicator will go out, and all programs will be cancelled.)

•To clear the last program

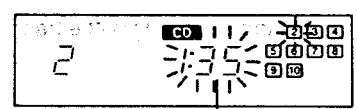
To clear the last program, press the Cancel Button before Program-play.

•To confirm the programmed memory

By pressing the Skip/Search Button during Program-play (stop mode), the program can be easily recalled.

■ Pause Function

If the Pause/E.P Button is pressed while a disc is being played, disc play will stop.



- Time Display flashes

- When this button is pressed once again, disc play will continue from where it stopped.

■ Search Function

If the ▷▷/▷▷| Button (or |◁◁/◁◁ Button) is pressed and held during disc play, sound from the disc can be heard as the pickup moves at high speed in the forward (reverse) direction (the output level at this time is ¼ of the level during normal play). Release the button when the pickup reaches the desired portion of the disc.

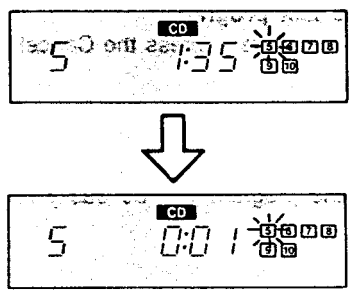
Notes:
- During Program-play, you can only search the track being played.
- If you release the button immediately, the unit will go into the Skip-play.

■ Skip Play

By pressing the Skip/Search Button momentarily during disc play or when disc play is paused, you can easily move the pickup to the beginning of the track being played or a track before or after it.

•When you wish to listen from the beginning of the track being played...

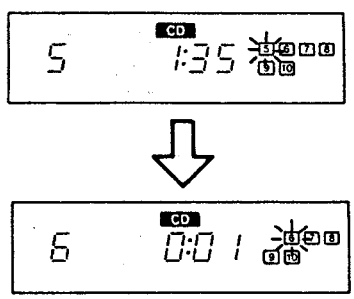
Press the |◁◁/◁◁ Button once.



For example
If you press the |◁◁/◁◁ Button while the track 5 is being played, the disc will be played from the beginning of the track 5.

•When you wish to skip the track being played and listen to the next track...

Press the ▷▷/▷▷| Button once.



If you press the ▷▷/▷▷| Button when the track 5 is being played, the disc will be played from the beginning of the track 6.

•When you wish to skip several tracks in either the forward or backward direction...

Press the Skip/Search Button repeatedly, and you can skip to the beginning of the desired track. (Verify the track number by observing the Track Display on the Display Panel.)

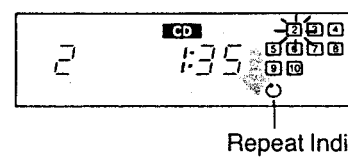
•During Program-play...

If the ▷▷/▷▷| Button is pressed during Program-play, the disc will be played from the beginning of the next memorized track. Press this button to step through to a desired memorized track.

If the |◁◁/◁◁ Button is pressed once during Program-play, the disc will be played once again from the beginning of the track which was being played. Press this button to step back to a desired memorized track.

■ Repeat Play

If the Repeat Button is pressed before or during disc play, the Repeat Indicator will appear, and the disc will be played repeatedly.
Pressing this button again will cancel the repeat function.



- During Program-play, only the memorized tracks will be played again in the memorized sequence.

The Tuner can be used in the following ways.

[1] Manual Tuning
Pressing the "+" of the Tuning Buttons one by one makes the Frequency Display change to the higher frequency, and pressing the "−" makes it change to the lower frequency. Release your finger when the desired station can be received.

[2] Preset Tuning
You can use the Preset Tuning feature of this unit by presetting as many as 20 stations (10 FM, 10 AM), into the Preset Tuning Buttons.

[1] Manual Tuning

1. Press the Power Switch to turn on the unit.
2. Press the "TUNER/BAND" Button of the Function Selector.
3. Press the "TUNER/BAND" Button to select the desired radio band; FM or AM.
   - The Band Indicator selected will be displayed.
4. Tune in your favorite station using the Tuning Button. Press "+" or "−" Tuning Button one by one till the correct frequency and the Tuning Indicator appears in the display.

Band	Tuning Step
FM	100 kHz
AM	9 kHz or 10 kHz

   - For FM reception, set the FM mode Selector to "ST" (STEREO). The FM Stereo Indicator will light during stereo broadcasts.
   - If FM stereo reception is poor (excessive noise); set the FM Mode Selector to "MONO". This will reduce the noise and provide clear reception; however, the broadcast will not be heard in stereo.
   - When listening to a radio broadcast, a beat tone (whistling tone) may be heard. In such a case, set the Microprocessor Beat Proof Switch [M.B.P.] on the rear of the unit to the position which results in minimum beat [I or II].
   - When receiving the AM broadcast, make sure to the correct setting ("9 kHz" or "10 kHz") of the AM Frequency Step Selector.
     (If setting the AM Frequency Step Selector, remove all batteries, unplug the AC power cord and press the Power Switch to erase the memory.)
5. Adjust the Volume, Balance, XBS and Graphic Equalizer Controls to the desired settings. (Refer to "Extra Bass System" and "Graphic Equalizer" on page 16.)

After use, be sure to press the Power Switch to turn off the unit.

[2] Preset Tuning

Memory Presetting

1. Tune to the desired broadcast using the "Manual Tuning".
2. Press the Preset Memory Button.
   - The Preset Memory Indicator will flash for several seconds.
   - If you cancel it, press the Preset Memory Button again.
3. Press one of the Preset Tuning Buttons (1–10) in the station where you want to memorize the station while the Preset Memory Indicator is flashing.
   - The Preset Memory Indicator will stop flashing and the selected channel number will indicate in the display.
4. Repeat the steps 1–3 to memorize a station in each of the remaining Preset Tuning Buttons.
   - When a new frequency is memorized, the frequency previously memorized in the channel will be cancelled.

■ Operation

Press the "TUNER/BAND" Button to select the desired radio band, and press the Preset Tuning Button to receive your desired station.

Most-recent memory

The most-recent memory system "remembers" the broadcast station last tuned to when the unit was switched off. That station will be automatically tuned to when the operation is switched on.

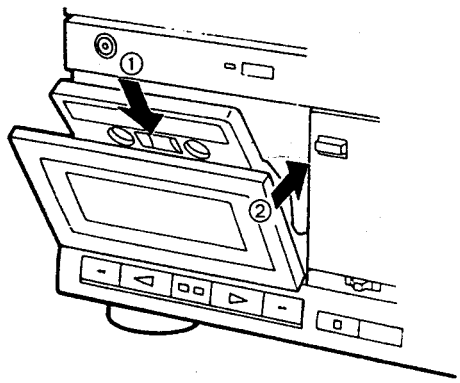
■ Antennas

FM:
Pull out the Telescopic Antenna and adjust its length and angle for optimum reception.

AM:
The sensitive ferrite core antenna inside the set will provide excellent AM reception in most areas. For optimum reception, turn the set in the direction which gives the best results since the ferrite core antenna is directional.

TAPE PLAYBACK

1. Open the Cassette Compartment cover by pressing the Eject Button. Insert the cassette as shown in the figure below, and then close the Cassette Compartment cover.



Note:
Make sure the exposed part of the cassette tape is face down. If it is upside down, the Cassette Compartment cover cannot be closed, do not try to force it shut.

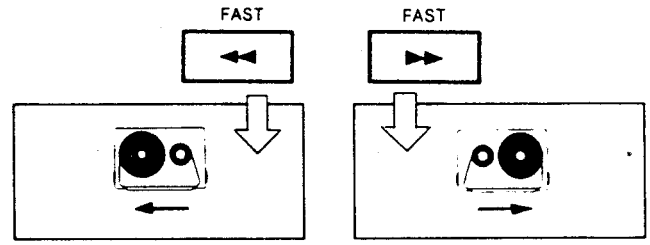
2. Press the Power Switch to turn on the unit.
3. Press the "TAPE" Button of the Function Selector.
4. Set the Reverse Mode Selector to the desired mode.
   ⇄ : Non-reverse mode
   ⇉ : Auto-reverse mode
   ↻ : Auto-continuous mode
   (Refer to page 17 "AUTO REVERSE SYSTEM".)
5. Press the Playback Button (FWD or REV) to begin tape playback.
   - The Forward or Reverse Indicator will light.
   - The front side (visible side) of the tape is played back in the forward direction, and the reverse side is played back in the reverse direction.
6. Adjust the Volume, Balance, XBS and Graphic Equalizer Controls to the desired settings. (Refer to "Extra Bass System" and "Graphic Equalizer" on this page.)
7. To stop the playback, press the Stop Button.
8. Press the Power Switch to turn off the unit.

■ Auto Tape Selector Function

The auto tape selector function automatically selects the types of tape as soon as a tape is loaded, and it sets the bias and equalization.
(Metal tape can be used for playback only.)

■ Fast Forward and Rewind

The tape will rapidly advance in the forward or reverse direction when one of the Fast Buttons is pressed (during stop condition).



■ Full Auto-Stop

During playback, recording, fast forward, or rewind when the tape reaches its end, the tape movement will automatically stop. However, if the Reverse Mode Selector is set to "↻" during playback, the Auto-Stop mechanism will not operate.

■ Graphic Equalizer

It allows you to tailor the frequency response of the unit to compensate for room acoustics and other factors which affect frequency response. The overall tone can be altered by adjusting the controls which control the following frequency bands:
100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz
Positioning the control the "+" side of the detent will amplify the corresponding frequency band; the "−" side will attenuate it.
- If the XBS Switch is set to "ON", the 100 Hz Control functions as an XBS Level Control.

■ Extra Bass System

When the XBS Switch is set to "ON", the dynamic low frequency ranges are boosted. Adjust the level by using the XBS Level Control. It is amplified at low volume levels and attenuated at high volume levels. Using this system with Graphic Equalizer helps you to get more dynamic sounds.

Notes:
- The Extra Bass System effect may be different according to the program content of the music tape.
- When you playback the music tape which was recorded with a high level, the playback sound may be distorted. In this case, adjust with the XBS Level Control.

AUTO REVERSE SYSTEM (DECK)

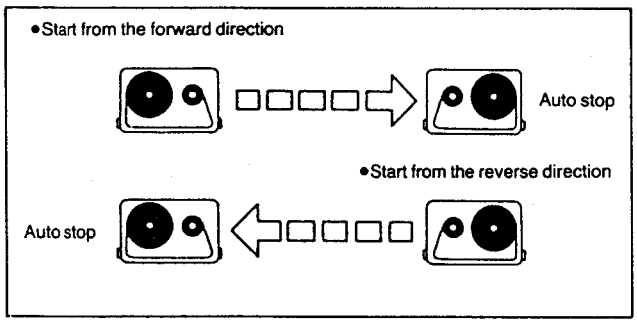
This unit is equipped with an auto reverse function that allows you to perform one-side playback/recording, two-side playback/recording or, repeat two-side playback.

- Tape direction can be reversed manually during playback by pressing the opposite direction of the Playback Button.

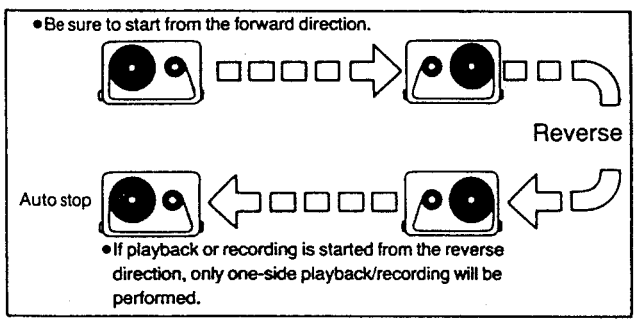
■ Reverse Mode Selector

The Reverse Mode Selector can be used to select any of 3 type modes.

•Non-Reverse Playback/Recording Mode (⇄)



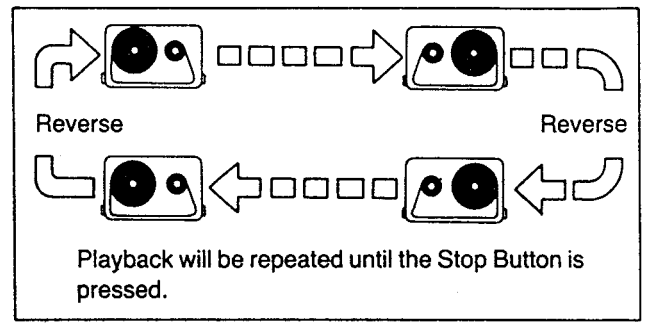
•Auto-Reverse Playback/Recording Mode (⇉)



Notes:

- A tape cannot be recorded on a side where record prevention tab has been broken. When performing two-side recording, be sure that the record prevention tabs for both sides of the tape are intact.
- When performing two-side recording, remember that if the cassette tape has a leader tape, recording will not be possible on that portion of the tape.
- The monitored sound will be temporarily interrupted during the operation of the auto-reverse function.

•Auto-Continuous Playback Mode (↻)



- The Auto-continuous mode can be operated in playback only. When recording, this mode will function the same as the Auto-reverse mode.

RECORDING

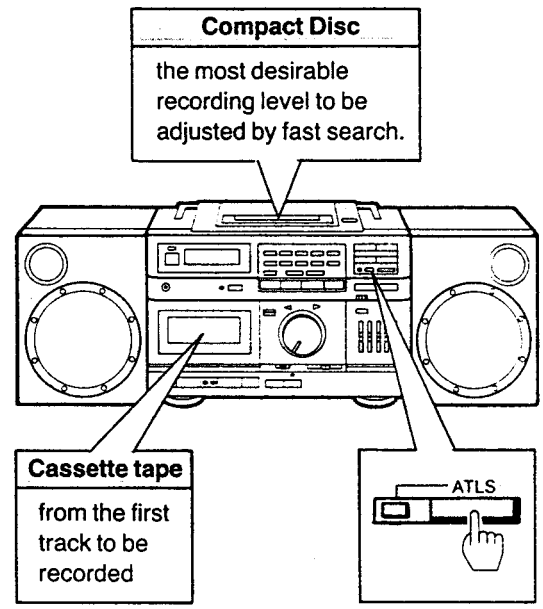
•This unit has an Automatic Level Control that adjusts the record level automatically when recording from the CD, radio, the external microphone, or Aux inputs.

•An Automatic Tape Level Setting (ATLS) system is also provided for setting the record level when recording from Compact Discs.

ATLS (Automatic Tape Level Setting) Recording

Since Compact Discs generally have a wide dynamic range, careful setting of the record level is required to achieve the best recording results. By using the ATLS system high quality recording from a Disc is as easy as manual recording.
When the ATLS Button is pressed in recording stand by mode, this unit will automatically scan (fast search) the disc, set the appropriate recording level, and then start the recording.

•The ATLS Indicator will flash in fast search mode and will light in recording mode.
•During the fast search, ATLS recording will be released if the ATLS Button is pressed again.
•When disc play is cancelled during ATLS recording, the set recording level will be released.



■ Recording from a Disc

This unit is provided with a synchro-recording function which starts recording when a disc is played, and stops recording when disc is stopped.

•The edited recording is possible by performing the Program-play in advance.

1. Press the Power Switch to turn on the unit.
2. Press the "CD" Button of the Function Selector.
3. a) Open the Disc Compartment cover by pressing the CD Eject Button.
   b) Insert a disc and then close the cover.
4. a) Open the Cassette Compartment cover by pressing the Eject Button.
   b) Insert the cassette and then close the cover.
5. Set the Reverse Mode Selector to the desired mode.
   ⇄ : Non-reverse mode
   ⇉ : Auto-reverse mode
6. Press the Rec Pause Button.
   •The Recording Indicator will light, and the Forward and the Reverse Indicators will flash.
7. Press the ATLS Button.
   A compact disc will be in fast (about 60 times faster) search mode and the recording will start automatically when the best record level has been set.
8. When the CD Play/Stop Button is pressed, disc play will stop, and the tape will go into a record standby status.
9. To stop recording, press the Tape Stop Button.
10. Press the Power Switch to turn off the unit.

•If the CD Edit/Pause is pressed when recording is taking place, recording will stop briefly, and if this button is pressed once again, recording will continue once again.
•If the Rec Pause Button is pressed, the deck will stop but disc play will continue. When the Playback Button (FWD or REV) is pressed, recording will start.
•To skip tracks which you do not wish to record, first, memorize the desired tracks using a program play operation.

Note:
Do not use the search mode during recording.
Monitor sound will also be recorded.

■ Edit Pause

This function is used when making a 2-sided recording of a CD in an arbitrary track sequence to prevent the source from being cut off when the tape reverses.

•For example, when recording onto a 46 minute tape, select the tracks so that the total recording time on side A of the tape is no more than 23 minutes.
•This unit calculates the total playing time for disc play and the total playing time appears on the Display Panel. It is useful for the accurate recording with no tape waste using Edit Pause.
•Set the Reverse Mode Selector to the Auto-reverse mode (⇉) before Edit Pause operation.

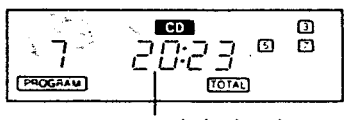
Procedure:
For example, to record tracks 3, 5, 7, 1, 2, 4, and 6 in that order...

[A disc with 7 tracks (42 min. 53 sec.)] ⇨ [To record both sides of the 46 min. cassette]

•The total playing time for the desired tracks can be confirmed.

■ Using Program-play, program the track 3, track 5, track 7 in that order for the forward side of the cassette to record.

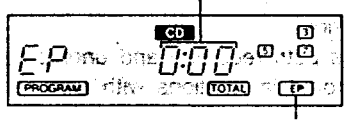
1. Press the Program Button.
2. Press the [3], [5] and [7] Button once to specify the tracks to be recorded.



temporary total playing time

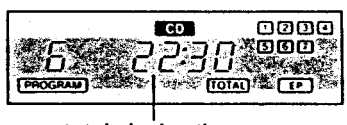
3. Press the Edit Pause Button.

Time display will change "000".



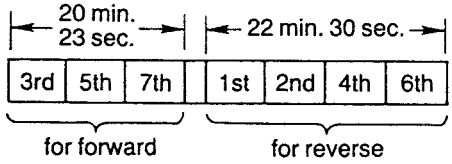
[EP] Indicator will appear.

4. Program the track 1, track 2, track 4, track 6 in that order to record for the reverse side of the cassette.



total playing time programmed for the desired tracks

5. Follow the procedure described in steps 6–10 of "Recording from a Disc".



Notes:
- •While playing a disc using the Edit Pause Button, only the Play/Stop Button will operate.
- •While playing a disc using the Edit Pause Button, the display of the time remaining on disc and the number of remaining tracks indicates those of the disc.
- •The real play time of one track (or the total playing time) does not always match with the time printed on the liner notes of a compact disc.

■ Recording Radio Broadcasts

1. Follow the procedure described in "RADIO".
2. Follow the procedure described in steps 4–6 of "Recording from a Disc".
3. Press the Playback Button (FWD or REV) to begin recording.
   - •The Forward or Reverse Indicator will stop flashing and stay lit indicating the tape direction.
4. To stop the recording, press the Stop Button.
5. Press the Power Switch to turn off the unit.

•Beat Proof Switch
When AM broadcast is recorded, the Beat Proof Switch can be used to reduce unwanted "beat" signals (whistle) which are sometimes present. Set the switch to whichever position best reduces these "Beat" signals.

■ Recording from External Equipment

(Refer to page 79.)

1. Connect the output terminal of the external equipment to the AUX Input Jacks.
2. Press the "AUX" Button of the Function Selector.
3. Follow the procedure described in steps 4–6 of "Recording from a disc".
4. Press the Playback Button (FWD or REV).

■ Recording through External Microphone

1. Connect the external microphone (not included) to the Mixing Microphone Jack.
2. Press the "TAPE" Button of the Function Selector.
3. Follow the procedure described in steps 2–5 of "Recording Radio Broadcasts".

■ Monitoring

The monitor system enables you to listen, through the speakers or headphones, to the sound as it is being recorded.
If it is necessary to adjust the volume level of the sound being monitored, do so by using the Volume Control.
Adjusting the Volume Control will not affect the Automatic Level Control record level settings.

■ Erasure of Recordings

When recording, previously recorded signals on the tape will be erased automatically.
To erase a tape without re-recording, use the following procedure.

1. Press the Power Switch to turn on the unit.
2. Set the Function Selector to "TAPE".
3. Press the Rec Pause Button and the Playback Button (FWD or REV).

MIC MIXING

Mixing is the combination of a voice or instrumental sound (through a microphone connected to the Mixing Microphone Jack) and the sound from a tape, CD, a radio broadcast or an equipment connected to the AUX Input Jacks.

■ Mixing Playback

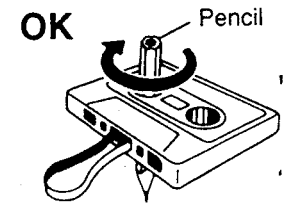
1. Connect the external microphone to the Mixing Microphone Jack.
2. Set the unit to playing mode.
   - In mic mixing with an equipment connected to the AUX Input Jacks, press the Function Selector to "AUX". These mic mixing sound can be recorded.

Notes:
- When not in mic mixing mode, unplug the microphone.
- If an external microphone is placed too close to the speakers, feedback (howling) may be heard. If so, place the microphone as far away from the speakers as possible, or reduce the volume.

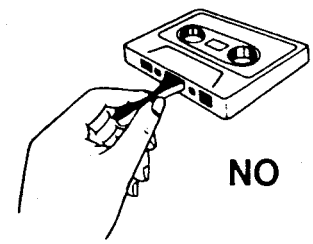
CASSETTE TAPES

Use only good quality type tapes up to the length of C-90. Do not use C-120 tapes with this unit because these tapes can easily become broken or stretched if not used with extreme care and may get tangled with the Capstans and Pressure Rollers.

If the tape loosens, take up the slack by turning the reel in the proper directions.



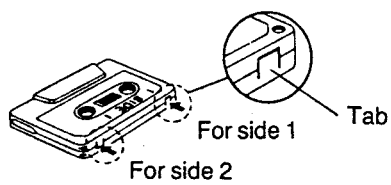
Do not handle, or pull the tape out of the cassette.

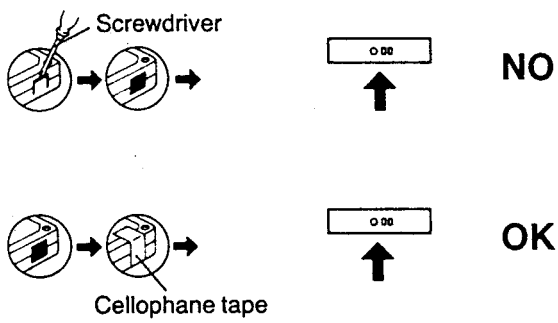


Note:
- Use normal or chrome type of cassette tapes only. If other tape is used, you may not obtain optimum performance.
- Cassettes both recorded and unrecorded, should not be stored in locations with high temperature, high humidity or direct sunlight. Never place a recorded cassette near a magnetic source, such as a magnet or a TV set as this may affect tape performance.

RECORD PREVENTION TABS

Cassettes are provided with plastic tabs (as illustrated) to prevent accidental erasing of a recording.
Recordings can be made only when the tab is intact. There is one tab for each side (track) of the tape. To preserve a valuable recording, the tab(s) should be broken off with a small screwdriver.
If you want to record on a track whose tab has already been broken off, use cellophane tape to cover the hole, and record.

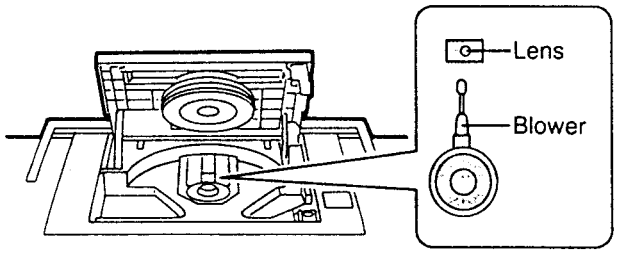




About the record prevention tabs and rec pause
The Indicator corresponding to the side of the tape on which recording is possible (side with tab intact) will flash. When the Rec Pause Button is pressed after a tape is loaded, the Forward or Reverse Indicator will flash. Pressng the Playback Button (FWD or REV) on the side that is flashing will cause the Indicator to stop flashing and stay lit, and recording will being.

■ Cleaning of Lens

Open the Disc Holder cover and clean the lens as shown.



•If the lens is extremely dirty, clean it with a cotton swab.

ABOUT DEW

Dew is often seen as water built-up on the inside of the windows in a warm room on a cold winter day. Dew can also form inside this unit in a similar manner in the following cases:

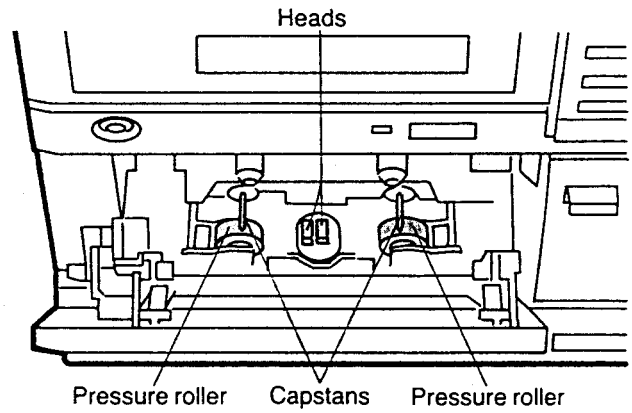
- •Immediately after a heater has been turned on.
- •In a steamy or very humid room.
- •When the unit is suddenly moved from a cold environment to a warm one.

If dew forms inside this unit, it may not operate properly. To correct this problem, turn off the unit and wait about 1 hour for the dew to go away.

■ Cleaning of Tape Heads

The head assembly, Capstans, and Pressure rollers are in constant contact with the tape. If these parts are dirty, the sound quality will be impaired. Get into the habit of cleaning the parts regularly (after every 10 hours or so of use) in accordance with the procedure outlined below.

1. Open the Cassette Compartment cover by pressing the Eject Button.
2. Clean them with a cotton swab.



Notes:

- •If the heads are extremely dirty, clean them with a soft cloth dampened with a little alcohol.
- •Do not bring any type of metal objects or tools such as magnetic screwdrivers in contact with the head assembly.
- •Do not clean the plastic cabinet with benzine or thinner. Clean it with a solution of soap and water.
- •Avoid spray-type insecticides. Some insecticides contain chemicals that could cause cabinet deformation.

REMOTE CONTROL OPERATION

The following operations can be performed using the wireless Remote Controller provided with the unit.

■ Operation Switch

•When using battery:
Power OFF.
•When using AC power source:
Power ON/OFF.

■ Tuner operations

Band switching, Preset tuning.

■ CD operations

Play/stop, skip/search, program, repeat, numeric key direct track selection, pause/edit-pause, cancel.

■ Tape operations

Playback, fast forward, rewind, record, record/pause, stop.

■ Volume adjustment

Increase, decrease.

■ Function (operation) select

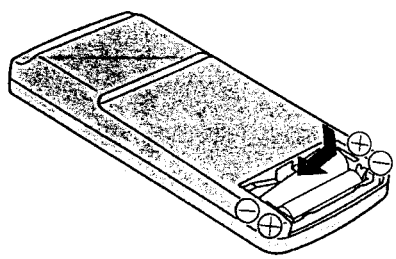
TAPE, CD, TUNER/BAND, AUX.

When operating the unit using the remote controller, press the buttons on the remote controller slowly and accurately.

■ Inserting the Remote Controller batteries

1. Open the cover of the battery case.

2. Insert the included batteries.
   Batteries used: Two UM-4. (National R03/LR03 or equivalent.)



Insert the batteries in the correct polarity (⊕ ⊖).

■ Replacement interval of Remote Controller batteries

Although the life of the batteries will vary depending upon the number of times that the Remote Controller is used, the average life based on the used of the batteries is about 1 year.

If the Remote Controller fails to operate when it is held near the unit, replace the batteries with new ones, even if one year has not elapsed.

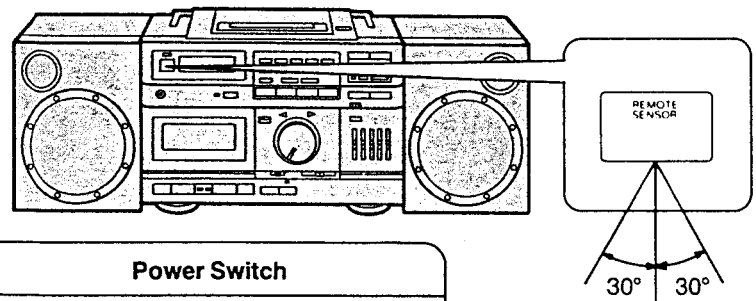
Precautions for using the Remote Controller

- If the unit is exposed to direct sunlight, the Remote Controller may sometimes fail to function. Be sure, therefore, to keep the unit out of direct sunlight. In such case, the maximum range of the Remote Controller (approx. 7 m) may sometimes be reduced.
- If strong light falls on the Remote Control sensor of the unit (e.g. high frequency type fluorescent lamp), the signals from the Remote Controller may fail to be received by the unit. In such case, take steps to prevent strong light from falling onto the unit.
- If there is an obstacle between the Remote Controller and the unit, the signals from the Remote Controller will be blocked off, preventing the unit from operating.
  Use the Remote Controller in a position directly in front of the unit so that the Remote Control Sensor can be seen.
- Even if the Remote Controller is not aimed at the unit, the unit may sometimes operate when a button on the Remote Controller is pressed. This is caused by the infra-red beam being reflected off a wall, ceiling, floor, or furniture, and striking the Remote Control Sensor of the unit.

■ How to Operate the Remote Controller

Aim the transmitter of the remote controller at the Remote Control Sensor on the unit, and press the necessary buttons on the remote controller.
First, press a button on the function section, and then press a button on the operation section, or another key.

- The receiving angle is approx. 60° (30° in each of the left and right directions).
- The maximum usable distance in about 7 m when the Remote Controller is aimed directly at the Remote Control Sensor.

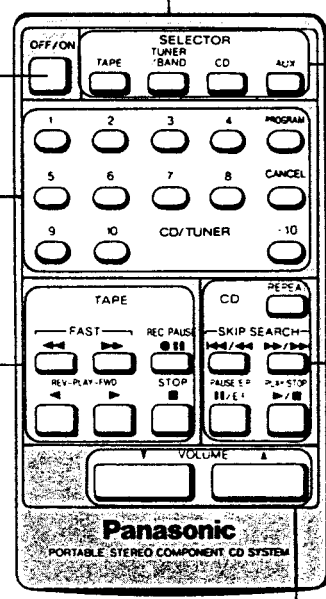


Power Switch

When using battery, it is not possible to turn on the unit with remote controller.

Functions Selector

"TUNER/BAND" key can also be used for Band Selector.



CD/TUNER operations

1~10, +10:
CD: Numeric Buttons
Tuner: Preset Tuning Buttons
PROGRAM:
CD: Program Button
TUNER: Preset Memory Button
CANCEL:
Cancel Button (CD only)

CD operations

REPEAT:
Repeat Button
SKIP/SEARCH:
Skip/Search Buttons
PAUSE/E.P:
Pause/Edit-pause Button
PLAY/STOP:
Play/Stop Button

TAPE operations

PLAY-REV:
Reverse Playback Button
PLAY-FWD:
Forward Playback Button
FAST:
Fast Buttons
REC PAUSE:
Rec-Pause Button
STOP:
Stop Button

Volume Controls

- Do not operate the Remote Controller of this unit near a unit which is designed to operate using a different remote controller.
- Do not simultaneously use this Remote Controller and one or more remote controllers intended either for the same type of unit or for another type of unit, such as a television set.
- If you operate the Remote Controller near the unit when listening to an AM broadcast, noise may be heard. In such a case, hold the Remote Controller at a sufficient distance from the unit so that noise is not heard.
- Do not disassemble the Remote Controller or touch any of the components inside it.
  Do not place a heavy object on the Remote Controller or leave it exposed to direct sunlight or in a hot location.
- Do not spill liquids on the Remote Controller. This may cause damage to the controller.